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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,225	02/08/2006	Yoshikazu Kakura	Q86499	6775
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SUITE 800				
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EXAMINER				
NGUYEN, LEON VIET Q				
ART UNIT		PAPER NUMBER		
2611				
NOTIFICATION DATE		DELIVERY MODE		
03/15/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/526,225

**Applicant(s)**

KAKURA ET AL.

**Examiner**

LEON-VIET Q. NGUYEN

**Art Unit**

2611

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 February 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 7 and 8 is/are rejected.
- 7) ☒ Claim(s) 3-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF-08)
- Paper No(s)/Mail Date 10/30/09.
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application.
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/16/10 has been entered.

### ***Response to Arguments***

1. Applicant's arguments filed 2/16/10 have been fully considered but they are not persuasive.

### ***Response to Remarks***

Regarding claim 1, applicant asserts that Xiao does not teach wherein a pilot code that is orthogonal to spreading code in a time or frequency domain is preferentially assigned (Remarks page 6 fifth paragraph).

Examiner respectfully disagrees.

It is first noted that claim 1 reads that the spreading codes are preferentially assigned, not the pilot symbols. Xiao teaches Walsh spreading codes, which are known to be orthogonal, assigned to a signal with a series number (page 1224 right side

second paragraph). The series number assigned to a particular signal is interpreted to be a preferential assignment.

Also regarding claim 1, applicant asserts that modifying the background and Xiao would render the system inoperable for its intended purpose (Remarks page 7 second paragraph).

Examiner respectfully disagrees.

In response to applicant's argument, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Furthermore, Walsh codes are well known to be used in CDMA and MC-CDMA systems (see US7327775 col. 5 lines 52-55 which teaches this well known feature. Note that US7327775 is not relied upon as prior art in the rejection but merely to show the state of the art). Therefore Xiao and the background would be able to be combined.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 10/30/09 was filed after the mailing date of 10/30/09. The submission is in compliance with the provisions of 37

CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the background of applicant's specification (hereby referred to as the background) in view of Xiao et al ("A Novel MC-2D-CDMA Communication Systems and Its Detection Methods" 2000 IEEE International Conference on Communications, Publication Date: 2000 Volume: 3, On page(s): 1223-1227).**

Re claim 1, the background teaches a radio transmitter-receiver wherein a pilot symbol that has undergone M-chip spreading on a frequency axis (the vertical axis in fig. 2) and N-chip spreading on a time axis (the horizontal axis in fig. 2) by means of a spreading code having an M x N chip length (page 3 line 26 – page 4 line 2) where M and N are any integers greater than or equal to 2 (fig. 2, page 3 line 26 – page 4 line 2) is used in the transmitter (it is well known that spreading codes are used in the transmitter portion of a system), and in the receiver, a spreading code that is not used in spreading a pilot signal is used as a despreading code to despread a received signal and then estimate noise and interference power (page 2 lines 18-21. One of ordinary

skill in the art would have found it obvious to implement CDMA techniques in a MC-2D-CDMA system, which is based on CDMA).

The background fails to teach wherein said spreading code that is used in spreading a pilot symbol and said despreading code that is used in despreading are assigned so as to be orthogonal at least in only N chips on the time axis and/or in only M chips on the frequency axis; and

wherein at least one of code that is orthogonal to said despreading code that is used in despreading even if only in M chips on the frequency axis and/or code that is orthogonal to said despreading code that is used in despreading even if only in N chips on the time axis is preferentially assigned as said spreading code that is used in spreading pilot symbols.

However Xiao teaches spreading codes which are orthogonal at least in only N chips on the time axis and/or in only M chips on the frequency axis (page 1224 right side second paragraph); and

wherein at least one of code that is orthogonal to said despreading code that is used in despreading even if only in M chips on the frequency axis and/or code that is orthogonal to said despreading code that is used in despreading even if only in N chips on the time axis (page 1224 right side second paragraph) is preferentially assigned as said spreading code that is used in spreading pilot symbols (page 1224 right side second paragraph. The Walsh code is a spreading code).

Therefore taking the combined teachings of the background and Xiao as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the feature of Xiao into the apparatus of the background. The motivation to combine Xiao and the background would be to provide higher capacity (page 1223 left side third paragraph of Xiao). Furthermore it is well know that utilizing orthogonality reduces interference between signals.

Re claim 7, all of the claim limitations as recited have been analyzed and addressed in the above rejections with respect to claim 1. It would be obvious and necessary to have a method of using the apparatus as claimed in claim 1.

Re claim 8, the modified invention of the background teaches a radio transmitter-receiver wherein the spreading code is at least one of a plurality of orthogonal spreading codes (page 1224 right side second paragraph of Xiao. The two dimensional orthogonal spreading code is realized by multiplying the codes on the time and frequency axis. Since there may be a different code on the frequency axis, it is interpreted that there is more than one orthogonal spreading code).

***Allowable Subject Matter***

3. Claims 3-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

4. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.



Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEON-VIET Q. NGUYEN whose telephone number is (571)270-1185. The examiner can normally be reached on Monday-Friday, alternate Friday off, 7:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Leon-Viet Q Nguyen/  
Examiner, Art Unit 2611

/David C. Payne/  
Supervisory Patent Examiner, Art Unit 2611